

**CLAIMS**

- 1) Method (400) for selecting a combination of transport formats for a composite channel comprising at least two transport channels with a view to the transmission of data conveyed by said transport channels, said combination of transport formats being comprised within a predetermined set E of combinations of transport formats, each combination of transport formats comprising a transport format for each of said at least two transport channels, the data to be transmitted originating from logical channels, each logical channel being associated with a single transport channel, each logical channel having a degree of priority with respect to the other logical channels, the data being transmitted within said transport channels during consecutive transmission time intervals, each transmission time interval exhibiting a duration specific to the transport channel to which it pertains, said selection of combination of transport formats being implemented at the start of reference transmission time intervals, said reference transmission time intervals designating the transmission time intervals of the transport channel having the smallest duration of transmission time interval,
- characterized in that it comprises:
- a configuration phase (410), said configuration phase comprising, for each logical channel (LCj), a first allocation step, said first allocation step consisting in allocating to the logical channel considered a time

window size expressed as a number  $N$  of transmission time intervals and a minimum bit rate representing a minimum quantity of data to be transmitted within the associated transport channel during a period of time

5 corresponding to a number  $N+1$  of consecutive transmission time intervals, said consecutive transmission time intervals pertaining to the associated transport channel, and

- a selection phase (420), said selection phase

10 comprising a step (500) of selecting a combination of transport formats at the start of each of said reference transmission time intervals, said selection step taking into account on the one hand the set of said sizes  $N$  of time windows allocated and on the other

15 hand the set of said allocated minimum bit rates.

2) Method according to Claim 1, characterized in that said selection step (500) comprises the following preparatory steps:

20 a) a first preparatory step (510) consisting in creating a subset  $F$  of combinations of transport formats comprising the combinations of transport formats which are valid of said set  $E$  of combinations of transport formats, said subset  $F$

25 of combinations of transport formats comprising, for the transport channels, the start of which current transmission time interval does not coincide with the start of the current reference transmission time interval, a transport format in

30 accordance with that

used during said current transmission time interval,

b) a second preparatory step (515) consisting in defining, for each of the logical channels for which the start of the current reference transmission time interval coincides with the start of a transmission time interval of the associated transport channel, a time window comprising the current transmission time interval of the associated transport channel and the N previous transmission time intervals, and in calculating the quantity of data transmitted within the associated transport channel during the first N transmission time intervals of the time window.

3) Method according to Claim 2, characterized in that said selection step (500) furthermore comprises a step of first iteration (535), said step of first iteration following upon said preparatory steps, said step of first iteration consisting in selecting a combination of transport formats from said subset F of combinations of transport formats making it possible to transmit, during said time window, for each of the logical channels concerned by said second preparatory step (515), or, by default, for the logical channels the degree of priority of which is the highest within the associated transport channels, the smallest quantity of data which is greater than or equal to that corresponding to the minimum bit rate allocated to the logical channel considered, the logical channels being scanned according to an order of scan, said order of

scan complying with the descending order of the degrees of priority of the logical channels concerned by said second preparatory step (515).

5 4) Method according to Claim 3, characterized in that said step of first iteration (535) comprises, for each logical channel concerned by said second preparatory step, said logical channels being processed according to said order of scan, the following steps:

- 10           - selecting a combination of transport formats from said subset F of combinations of transport formats making it possible to transmit, during the time window, within the associated transport channel, the smallest quantity of
- 15           data which is greater than or equal to that corresponding to the minimum bit rate or, by default, the largest possible quantity of data, and
- 20           - reducing the subset F of combinations of transport formats to the combinations of transport formats making it possible to transmit, during the time window, a quantity of
- 25           data which is greater than or equal to that of the selected combination of transport formats, the resulting subset F of combinations of transport formats being used for the processing
- of the logical channel if the case arises.

5) Method according to any of Claims 1 to 4,  
30 characterized in that said configuration phase (410) furthermore comprises, for each logical channel, a

second allocation step (450), said second allocation step consisting in allocating to the logical channel considered a nominal bit rate representing a nominal quantity of data to be transmitted during a period of time corresponding to N+1 consecutive transmission time intervals, said consecutive transmission time intervals pertaining to the associated transport channel, said nominal quantity of data being greater than or equal to said minimum quantity of data.

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6) Method according to Claim 5 taken in conjunction with Claim 2, characterized in that said selection step (500) furthermore comprises, following upon said step of first iteration, a step of second iteration (535) in which a combination of transport formats is selected from said subset F of combinations of transport formats making it possible to transmit, during said time window, for each of the logical channels concerned by said second preparatory step, or, by default, for the logical channels the degree of priority of which is the highest within the associated transport channels, the largest quantity of data which is less than or equal to that corresponding to the nominal bit rate allocated to the logical channel considered.

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7) Method according to Claim 6, characterized in that said step of second iteration (535) consists in performing, for each logical channel concerned by said second preparatory step, said logical channels being processed according to said order of scan, the following steps:

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- selecting a combination of transport formats from said subset F of combinations of transport formats making it possible to transmit, during the time window, within the associated transport channel, the largest quantity of data which is less than or equal to that corresponding to the nominal bit rate, and

- reducing said subset F of combinations of transport formats to the combinations of transport formats making it possible to transmit, during the time window, a quantity of data which is greater than or equal to that of the selected combination of transport formats, the resulting subset F of combinations of transport formats being used for the processing of the logical channel if the case arises.

8) Method according to any of Claims 3, 4, 6 and 7, characterized in that said selection step (500) furthermore comprises, following upon the last iteration step, a step of third iteration in which a combination of transport formats is selected from the subset F of combinations of transport formats making it possible to transmit, during said time window, for each of the logical channels concerned by said second preparatory step (515), or, by default, for the logical channels the degree of priority of which is the highest within the associated transport channels, the quantity of data available within the logical channels considered.

9) Method according to Claim 8, characterized in that said step of third iteration consists in performing, for each logical channel concerned by said second preparatory step (515), said logical channels being  
5 processed according to said order of scan, the following steps:

- selecting a combination of transport formats from said subset F making it possible to transmit, during said time window, within the  
10 associated transport channel, the quantity of data available within the logical channel considered, and
- reducing said subset F of combinations of transport formats to the combinations of  
15 transport formats making it possible to transmit, during said time window, a quantity of data which is greater than or equal to that of the selected combination of transport formats, the resulting subset F of combinations  
20 of transport formats being used for the processing of the next logical channel.

10) Method according to any of the preceding claims taken in conjunction with Claim 3, characterized in  
25 that said selection step (500) furthermore comprises a third preparatory step (505), said third preparatory step consisting in modifying said order of scan in such a way as to order the logical channels of same degree of priority as a function of a state parameter (STATE)  
30 representative of the quantity of data transmitted

during the last selection step concerning the logical channel considered.

11) Method according to Claims 2 and 10 taken in  
5 conjunction, characterized in that said selection step (500) furthermore comprises an updating step (575), said updating step following upon the last iteration step, said updating step consisting in updating the STATE parameter of each logical channel concerned by  
10 said second preparatory step by calculating the quantity of data transmitted during the previous N transmission time intervals and said current transmission time interval and by comparing said calculated quantity of data with said minimum bit rate  
15 of the concerned logical channel.

12) Method according to Claims 11 and 5 taken in  
conjunction, characterized in that, during said  
updating step, said calculated quantity of data is also  
20 compared with said nominal bit rate of the concerned logical channel.

13) Method according to any of the preceding claims,  
characterized in that the size (N) of the time window  
25 of a logical channel is determined as a function of the service fulfilled by the latter.

14) Mobile station of a telecommunication system  
characterized in that it comprises a device  
30 implementing the method for selecting a combination of transport formats according to any of Claims 1 to 13.